

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE  
PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

5

1. A burner fuel mixer head, comprising:

a primary housing having a fuel/air mixing chamber with a  
mixed fuel gas inlet, a combustion air inlet, and a mixed  
fuel/air outlet communicating with the fuel/air mixing  
10 chamber;

a secondary housing having a fuel mixing chamber with a  
pressurized fuel gas inlet and a low pressure fuel gas  
inlet, the fuel mixing chamber of the secondary housing  
communicating with the mixed fuel gas inlet leading into the  
15 primary housing;

a venturi throat with converging sidewalls positioned in  
the mixed fuel gas inlet;

a venturi nozzle communicating with the pressurized fuel  
gas inlet, a first end of the venturi nozzle extending into  
20 the fuel mixing chamber in axial alignment with the venturi  
throat to form a venturi, such that a pressurized flow of  
pressurized fuel gas through the venturi draws low pressure  
fuel gas from the fuel mixing chamber of the secondary  
housing through the mixed fuel gas inlet into the fuel/air  
25 mixing chamber of the primary housing.

2. The burner fuel mixer head as defined in Claim 1, wherein  
the venturi nozzle is positioned in a pressurized fuel gas  
inlet passage.

30

3. The burner fuel mixer head as defined in Claim 2, wherein  
the venturi nozzle is axially movable in the pressurized  
fuel gas inlet passage, such that the venturi nozzle can be  
moved either toward or away from the venturi throat to  
35 adjust the relative proportions of pressurized fuel gas and  
low pressure fuel gas being fed through the mixed fuel gas  
inlet into the fuel/air mixing chamber.

4. The burner fuel nozzle mixer head as defined in Claim 3, wherein the pressurized fuel gas inlet passage has an interior sidewall with threads and a second end of the  
5 venturi nozzle has an exterior surface with threads, such that the venturi nozzle is maintained in threaded engagement with the interior sidewall of the pressurized fuel gas inlet passage, rotation of the venturi nozzle resulting in axial movement of the venturi nozzle in the pressurized fuel gas  
10 inlet passage.

5. The burner mixer head as defined in Claim 4, wherein the second end of the venturi nozzle has a tool receiving receptacle, whereby the venturi nozzle is rotated by means  
15 of a tool extended into the pressurized fuel gas inlet passage and engaged with the tool receiving receptacle.

6. The burner mixer head as defined in Claim 4, wherein an externally threaded lock nut is provided to maintain the  
20 axial positioning of the venturi nozzle in the pressurized gas inlet passage.

7. The burner mixed head as defined in Claim 1, wherein the mixed fuel/air outlet of the primary housing has converging  
25 sidewalls, thereby providing a venturi which draws combustion air through the combustion air inlet into the fuel/air mixing chamber.

8.

A burner fuel mixer head, comprising:

a primary housing having an interior cavity defining a fuel/air mixing chamber, the primary housing having a mixed fuel gas inlet, a combustion air inlet, and a mixed fuel/air outlet all of which communicate with the interior cavity;

a secondary housing having an interior cavity defining a fuel mixing chamber, the interior cavity of the secondary housings communicating with the mixed fuel gas inlet leading into the primary housing, the secondary housing having a pressurized fuel gas inlet and a low pressure fuel gas inlet;

a venturi throat with converging sidewalls positioned in the mixed fuel gas inlet;

a pressurized fuel gas inlet passage leading from the pressurized fuel gas inlet to the fuel mixing chamber of the secondary housing;

a venturi nozzle positioned in the pressurized fuel gas inlet passage and communicating with the pressurized fuel gas inlet, a first end of the venturi nozzle extending into the fuel mixing chamber in axial aligned with the venturi throat to form a venturi, such that a pressurized flow of pressurized fuel gas through the venturi draws low pressure fuel gas from the fuel mixing chamber of the secondary housing through the mixed fuel gas inlet into the fuel/air mixing chamber of the primary housing, the venturi nozzle being axially movable in the pressurized fuel gas inlet passage, such that the venturi nozzle can be moved either toward or away from the venturi throat to adjust the relative proportions of pressurized fuel gas and low pressure fuel gas being fed through the mixed fuel gas inlet into the fuel/air mixing chamber, the pressurized fuel gas inlet passage having an interior sidewall with threads and a second end of the venturi nozzle having an exterior surface with threads, such that the venturi nozzle is maintained in threaded engagement with the interior sidewall of the

pressurized fuel gas inlet passage, rotation of the venturi nozzle resulting in axial movement of the venturi nozzle in the pressurized fuel gas inlet passage.

59. The burner mixer head as defined in Claim 8, wherein the second end of the venturi nozzle has a tool receiving receptacle, whereby the venturi nozzle is rotated by means of a tool extended into the pressurized fuel gas inlet passage and engaged with the tool receiving receptacle.

10

10. The burner mixer head as defined in Claim 8, wherein an externally threaded lock nut is provided to maintain the axial positioning of the venturi nozzle in the pressurized gas inlet passage.

15

11. The burner mixed head as defined in Claim 8, wherein the mixed fuel/air outlet of the primary housing has converging sidewalls.